

Wednesday, June 08, 2016 2:56:50 PM

147696

Page 1

N900040100

Setup Start *NS1*

Stop *NS2*

Start Date: 6/20/2016 **Start Qty:** 1.00 ***1***

Cust Item ID:

Required Date: 6/24/2016 **Req'd Qty:** 1.00 *** 1 ***

Customer:

Reference:

Approvals: **Process Plan:** 1/1 **Date:** _____ **Tooling:** _____ **Date:** _____

Run Start *NR1*

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop *NR2*

[illegible]

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐							
Date :		Step #:		QTY Effective :				MRB (QSI042) Approval			
Description Work Order Deviation				Disposition				Completed By			
Root Cause				FAULT CATEGORY							
Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐		No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐		Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐		Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐		Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Mislabeled ☐ Fit/Function ☐ Misaligned/off center ☐		Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐	
OTHER : ☐											

Work Order ID 147696

Wednesday, June 08, 2016 2:56:50 PM

147696

Page 2

Item ID: D412-786-025

Accept

N900040100Setup Start ***NS1***

Revision ID:

Stop ***NS2***

Item Name: Tailboom Mount

Start Date: 6/20/2016 Start Qty: 1.00

1

Cust Item ID:

Required Date: 6/24/2016 Req'd Qty: 1.00

1

Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Run Start ***NR1***

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
130		0.00							
130	Packaging					DAS	DAS		
Packaging	Memo	0.00				28	27		
Packaging	Identify and pack for shipping as per PPP D412-786-025 Location : FG122 PPP147258					9.88	9.88	JUN 27 2016	
140	QC21- Final Inspection - Work Order Release	0.00							
140									
QC	Memo	0.00							
Quality Control									

SH. 6/27/16

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date : _____	Step #: _____	QTY Effective : _____		MRB (QSI042) Approval	
Description Work Order Deviation		Disposition			
				Completed By	
				Lead hand / Supervisor Approval Verification	
				QC / QA Coordinator Approval	
Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐		FAULT CATEGORY Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Misabeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐			
OTHER : _____					

Picklist Print

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Page 1

Work Order ID: 147696

147696

Parent Item: D412-786-025

D412-786-025

Parent Item Name: Tailboom Mount

Start Date: 6/20/2016

Required Date: 6/24/2016

Start Qty: 1.00

Required Qty: 1.00

Comments: IPP REV:A NEW ISSUE 13-10-30 JLM VERIFIED BY:DD

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
---------------------------------	------------------------	---------------	-------------	---------------------	------------------	-----------------	--------------------	----------------	-------------	--------------	---------------	----------------	--------

NAS1149D0332J

Purchased

No

Each

1,258.000

24

NAS1149D0332.J

**

Washer

Location

Loc Qty

Loc Code

CA

6

m129682

6

FP001

22

m134502

22

ST260a

1200

m134738

600

m134848

600

ST264

30

m134502

30

DAS 27
6 9-89

DAS 28
9-89

24

D4950-041

Manufactured

No

Each

3.0000

1

D4950-041

**

Tailboom Mount

Location

Loc Qty

Loc Code

ST139

3

111909

3

DAS 28
9-89

D4950-043

Manufactured

No

Each

2.0000

2

D4950-043

**

Tailboom Mount

Location

Loc Qty

Loc Code

ST139

2

143500

2

DAS 27
6 9-89

DAS 28
9-89

2

JUN 23 2016

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval		
Description Work Order Deviation				Disposition				Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval	
Root Cause		FAULT CATEGORY							
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐				
Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐				
Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐				
Equip/Tooling ☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐				
Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐				
Material ☐	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐				
Internal Transport ☐	Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐				
Tribal Knowledge ☐	Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐				
LOA ☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐				
Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐				
Past Expiry Date ☐	Manufacturing Process ☐								
Misidentified ☐	Past Due ☐	OTHER :							

Picklist Print

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Page 2

Work Order ID: 147696

147696

Parent Item: D412-786-025

D412-786-025

Parent Item Name: Tailboom Mount

Start Date: 6/20/2016

Required Date: 6/24/2016

Start Qty: 1.00

Required Qty: 1.00

MS21042L3

Purchased

No

Each

1,895.000

12

MS21042L3

Nut

DAS
28
9-89

Location

Loc Qty

Loc Code

FP001

44

m133790

44

GA

269

m133790

3

m134360

266

OVER007

600

m134754

600

ST303

982

m134039

12

m134634

170

m134943

800

DAS
6
9-89
DAS
27
9-89

12

MS27039-1-11

Purchased

No

Each

175.0000

12

MS27039-1-11

Screw

JUN 23 2016

DAS
6
9-89
DAS
27
9-89

Location

Loc Qty

Loc Code

GA

20

125654

13

9662

7

over006

50

m134738

50

ST280

105

124326

105

12

DAS
28
9-89

DQA: _____ Date: _____

**WORK ORDER NON-CONFORMANCE / UPDATE**

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval 		
Description Work Order Deviation				Disposition					
							Completed By		
							Lead hand / Supervisor Approval Verification		
							QC / QA Coordinator Approval		

Root Cause				FAULT CATEGORY							
Environment	☐	No Re-verification	☐	Pressure/Forced	☐	Temperature/Cure	☐	Power Loss/Surge	☐	Positioned Wrong	☐
Design	☐	Operator	☐	Bending	☐	Set-up	☐	Folio/Program	☐	Outside Dimensions	☐
Doc/Data	☐	Offset/Setup	☐	Centre Not Concentric	☐	BOM/Route	☐	Grain	☐	Over/Under tolerance	☐
Equip/Tooling	☐	Supplier	☐	Cracks	☐	Broken/Damage/Defect	☐	Weld	☐	Part Incorrect	☐
Handling/Pre	☐	Training	☐	Crimp/Kink/Ripple/Wave	☐	Inspection Incomplete/Unqualified	☐	Wrong Stock Pulled	☐	Part Lost/Missing	☐
Material	☐	Use for Testing	☐	Cuffs	☐	Contamination	☐	Out of Sequence	☐	Part Moved	☐
Internal Transport	☐	Poor Information	☐	Crushing	☐	Countersink	☐	Off-set	☐	Drawing	☐
Tribal Knowledge	☐	Rushing	☐	Heat Treat	☐	Cut Too Short	☐	Mislabeled	☐	Finish	☐
LOA	☐	Product Improvement	☐	Wave/Twist in Tube	☐	Instructions Incomplete/Unclear	☐	Fit/Function	☐	Misread	☐
Substation	☐	Process Improvement	☐	Marks/Chatter	☐	Drill Holes	☐	Misaligned/off center	☐	Turning Sequence	☐
Past Expiry Date	☐	Manufacturing Process	☐	OTHER : _____							
Misidentified	☐	Past Due	☐								

FWD UPPER HARDPOINT
SEE FIGURE 2

FWD HARDPOINTS
SEE FIGURE 1

REFERENCE ONLY

RH TAILBOOM MOUNTS
SEE FIGURES 3 & 5

LH TAILBOOM MOUNTS
SEE FIGURES 4 & 6

D412-786-011/-021 HARDPOINT KIT

QTY -011	QTY -013	QTY -015	QTY -021	QTY -025	PART NUMBER	DESCRIPTION
X					D412-786-011	HARDPOINT KIT
1	X		1		D412-786-013	FWD HARDPOINT KIT
1		X			D412-786-015	TAILBOOM MOUNT KIT
			X		D412-786-021	HARDPOINT KIT
			1	X	D412-786-025	TAILBOOM MOUNT KIT
		1			D3868-041	TAILBOOM MOUNT
		2			D3868-043	TAILBOOM MOUNT
1					D3870-041	FWD LH HARDPOINT
1					D3870-042	FWD RH HARDPOINT
1					D3870-5	FWD UPPER HARDPOINT
1					D3871-1	DOUBLER
1					D3871-2	DOUBLER
				1	D4950-041	TAILBOOM MOUNT
				2	D4950-043	TAILBOOM MOUNT
10	12		12		MS21042L3	NUT
8	12		12		MS27039-1-11	SCREW
1					MS27039-1-12	SCREW
1					MS27039-1-14	SCREW
10	24		24		NAS1149D0332J	WASHER

INSTALLATION	WEIGHT	LONGITUDINAL		LATERAL	
		ARM	MOMENT	ARM	MOMENT
D412-786-011 HARDPOINT KIT	0.68 LBS 0.26 KG	164.67 IN 4.18 M	95.51 IN-LB 1.09 KG-M	-1.25 IN -0.03 M	-0.73 IN-LB -0.008 KG-M
D412-786-013 FWD HARDPOINT KIT	0.22 LBS 0.10 KG	-13.55 IN -0.34 M	-2.98 IN-LB -0.03 KG-M	2.38 IN 0.06 M	0.52 IN-LB 0.008 KG-M
D412-786-015 TAILBOOM MOUNT KIT	0.36 LBS 0.16 KG	273.58 IN 6.95 M	98.49 IN-LB 1.11 KG-M	-3.47 IN -0.09 M	-1.25 IN-LB -0.01 KG-M
D412-786-021 HARDPOINT KIT	0.64 LBS 0.29 KG	164.67 IN 4.18 M	105.39 IN-LB 1.21 KG-M	-1.25 IN -0.03 M	-0.08 IN-LB -0.01 KG-M
D412-786-025 TAILBOOM MOUNT KIT	0.42 LBS 0.19 KG	273.58 IN 6.95 M	114.90 IN-LB 1.32 KG-M	-3.47 IN -0.09 M	-1.46 IN-LB -0.02 KG-M

NOTES:

- 1) D412-786-011/-021 HARDPOINT KIT REQUIRED ON 412/412EP AIRCRAFT UTILIZING D412-895-011 BLADE FOLDING KIT WHERE WIRE STRIKE COMPATABILITY IS REQUIRED
- 2) D412-786-021 HARDPOINT KIT REQUIRED ON AIRCRAFT EQUIPPED WITH BLR TAILBOOM STRAKE KIT
- 3) TOUCH UP DRILLED HOLES WITH ALODINE PER THE AIRCRAFT MAINTENANCE MANUAL
- 4) TORQUE FASTENERS AS FOLLOWS: 10-32; 20-25 IN-LBS
- 5) PRIME AND PAINT HARDPOINTS TO MATCH AIRCRAFT PAINT SCHEME PER AIRCRAFT MAINTENANCE MANUAL

C	MODIFY D3870-5 INSTALLATION INSTRUCTION, ADD TO NOTE 2, SH 3 AND CLARIFY/CORRECT VIEW C-C (ZN A8-3, C3-3)	DB	14.04.28
B	ADD -021/-025 KITS, SHEETS 6 & 7	DB	13.10.17
A	NEW ISSUE	DB	08.01.14
REV	DESCRIPTION	BY	DATE
DESIGN	DB		
DRAWN	DB		
CHECKED	DB		
MFG. APPR.	N/A		
APPROVED	DB		
DE APPR.	DB		
DATE	14.04.28		

DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWING NO. D412-786-1	REV. C SHEET 1 OF 7
TITLE HARDPOINT KIT INSTALL	SCALE NTS
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Work Order ID 147696

Thursday, June 23, 2016 1:10:39 PM

147696

Page 1

Item ID: D412-786-025

Accept

N9000040100

Setup Start ***NS1***

Revision ID:

Stop ***NS2***

Item Name: Tailboom Mount

Start Date: 6/20/2016 Start Qty: 1.00 ***1***

Cust Item ID:

Required Date: 6/24/2016 Req'd Qty: 1.00 ***1***

Customer:

Reference:

Approvals: Process Plan: Date:

Tooling: Date:

Run Start ***NR1***

QC: Date:

SPC (Y/N): Date:

Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

Draw Nbr	Revision Nbr
D412-786-1	

100	Document Control	0.00							
-----	------------------	------	--	--	--	--	--	--	--

100

DC

DOCUMENT CONTROL

Memo 0.00

Doc.Control -USB or Paperwork

Photocopy bluefile and create labels per PPP D412-786-025 chg001

ms
see attachment
CHG 002

ms **JUN 23 2016**

110	Pick Kit	0.00							
-----	----------	------	--	--	--	--	--	--	--

110

Packaging

Memo 0.00

Packaging

120	QC4- 100% Inspect kits for completeness	0.00							
-----	---	------	--	--	--	--	--	--	--

120

QC

Memo 0.00

Quality Control

Change Record

PAGE 1 OF 1

Part Number: D412-786-025Description: TAILBOOM MOUNT INSTALLATION[illegible]